

**Commonwealth of Kentucky**  
**Division for Air Quality**  
***PERMIT STATEMENT OF BASIS***

DRAFT PERMIT NO. F-06-012

DANA Torque-Traction Technology, Inc  
10000 BUSINESS BOULEVARD, DRY RIDGE KY 41035

MAY 24, 2006

FROUGH SHERWANI, REVIEWER

PLANT I.D. # 021-081-00019

AI # 4255

Activity # APE20060001

The DANA Torque-Traction Technology, Inc assembles lightweight vehicle axles used in vans, trucks, and sport utility at its facility at 10000 Business Blvd, Dry Ridge (Grant County), Kentucky. The source is a minor source, which is registered with the Division pursuant to 40 KAR 52:070

The source operates several assembly lines, some of which have no air emissions. As part of some lines, the source paints the axles to inhibit corrosion during normal use. The source is currently operating four assembly lines that include painting as part of the process. The lines (200, 300, 400) use a water based coating that contains low levels of VOC. A fourth line (line 100) uses a VOC based coating. The source's current potential-to-emit calculations are well below major source thresholds, and the source is therefore a registered minor source. The source is planning an expansion of plant by incorporating four new process lines which are currently located at the source's Buena Vista, Virginia. These new lines will include paints booth that uses a VOC based – coating, as a result the source's potential-to-emit will exceed 100 tons per year of both VOCs and particulate matter, and 10 tons per year of for toluene (HAP). Operating records from Buena Vista plant indicates that actual emissions are below major source thresholds.

Therefore, On February 7, 2006, the source has applied to the Division for the conditional major permit.

**Coating Usage Calculations:**

**EP 01 (Line 100):**

Line 100 uses a manual conveyor system, where the axle is advanced by the operator pulling the axle from the assembly line and positioning it in the spray booth. This procedure takes approximately 10 seconds. Axles painted in this line require a minimum of 25 seconds to fully coat. Another 5 seconds are used to pull the painted axle out of the booth where it can be removed and placed into the shipping rack. Total cycle time for one axle is 40 seconds, which converts to a maximum hourly production rate of 90 axles per hour, and an annual rate of 788.4 thousand axles per line.

The actual annual usage for the high-VOC coating used in all five lines was 18,592 gallons. This amount of coating was used to paint a total of 445,566 axles, for a usage rate of 41.7 gallons per thousand axles.

The maximum hourly coating usage per line would therefore be calculated as follows:

Maximum hourly production = 90 axles/hr = 0.090 k-axles/hr

Coating Usage =  $41.7 \text{ gal/k-axle} * 0.090 \text{ k-axles/hr} = 3.8 \text{ gal/hr}$

#### **EP 5, 6, 7, and 8 ( Lines 400, 500R, 600 and 650):**

These paint lines each have a power free conveyor system that moves the axle into and out of the paint booth. The operator presses a release button to initiate the cycle. At this point, the conveyor moves a new axle into the paint booth while at the same time moving the painted axle out of the booth ready to be loaded onto racks. The line speed for the conveyor is 30 feet per minute. The distance from the on deck stop to the stop in the paint booth is 13 '10". According to BV data, the axle takes 26 seconds to move into the paint booth (based on a conveyor speed of 0.5 feet per second X 13 feet, with no waiting time for the conveyor to begin moving the axle). The minimum time to paint an axle in these lines is 29 seconds. Total cycle time for one axle is therefore 55 seconds, which converts to a maximum hourly production rate of 65.5 axles per hour, and an annual rate of 573.8 thousand axles per line.

The actual annual usage for the high-VOC coating used in all five lines was 18,592 gallons. This amount of coating was used to paint a total of 445,566 axles, for a usage rate of 41.7 gallons per thousand axles.

The maximum hourly coating usage per line would therefore be calculated as follows:

Maximum hourly production = 65.5 axles/hr = 0.0665 k-axles/hr

Coating Usage =  $41.7 \text{ gal/k-axle} * 0.066 \text{ k-axles/hr} = 2.7 \text{ gal/hr}$

#### **Type Of Control And Efficiency:**

Spray paint booths at emission points 1, 2, 3 4, have fiberglass filters to control particulate matter. The control efficiency of the filters are assumed to be 90%.

Spray paint booths at emission points 5, 6, 7, and 8 will have fiberglass filters to control particulate matter. The control efficiency of the filters are assumed to be 90%.

Welding operations at emission points 1, 3, and 4 have cyclone dust collectors to control particulate matter. The control efficiency of the cyclone are assumed to be 75%

Welding operations at emission points 5, 6, 7 and 8 will have cartridge filter dust collector to control particulate matter. The control efficiency of the cyclone are assumed to be 90%.

#### **Emission Factors And Their Source:**

AP -42 5<sup>th</sup> edition, and mass balance are used for the emission factors for PM, VOC and HAP'S.

**Applicable Regulations:**

- a. **401 KAR 59:010**, New Process Operations (applicable to each affected facility associated with a process operation commenced on or after July 2, 1975);
- b. **401 KAR 63:020**; Potentially hazardous matter or toxic substances, applicable to each affected facility, which emits or may emit potentially hazardous matter or toxic substances.
- c. **401 KAR 52:030**. Federally enforceable permits for non-major sources.

**Precluded Regulations:**

**40 CFR 63 Subpart MMMM-** National Emission Standards for Hazardous Air Pollutants for Surface Coating of Miscellaneous Metals Parts and Products.

**Emission And Operating Caps:**

1. The source has accepted a facility-wide cap on annual VOC emissions of no more than 90 tons per rolling 12-month period. Compliance with this allowable will be demonstrated by record keeping and emissions estimating methodology specified in the terms and conditions of the permit.
2. The source has accepted a facility-wide cap on annual individual HAP emission of no more than 9.0 tons per rolling 12-month period. Compliance with this allowable will be demonstrated by record keeping and emissions estimating methodology specified in the terms and conditions of the permit.
3. The source has accepted a facility-wide cap on annual combined HAPS emissions of no more than 22.5 tons per rolling 12-month period. Compliance with this allowable will be demonstrated by record keeping and emissions estimating methodology specified in the terms and conditions of the permit.

**Credible Evidence:**

This permit contains provisions which require that specific test methods, monitoring or recordkeeping be used as a demonstration of compliance with permit limits. On February 24, 1997, the U.S. EPA promulgated revisions to the following federal regulations: 40 CFR Part 51, Sec. 51.212; 40 CFR Part 52, Sec. 52.12; 40 CFR Part 52, Sec. 52.30; 40 CFR Part 60, Sec. 60.11 and 40 CFR Part 61, Sec. 61.12, that allow the use of credible evidence to establish compliance with applicable requirements. At the issuance of this permit, Kentucky has only adopted the provisions of 40 CFR Part 60, Sec. 60.11 and 40 CFR Part 61, Sec. 61.12 into its air quality regulations.